SCIENCE NEWS-LETTER

The Weekly Summary of Current Science

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SCIENTIFIC ARSON

At the Height of the Safe-Testing Conflagration

(See page 402)

Vol. XIII No. 377

Army Studying Report on Explosive

Chemistry

Radium atomite, the explosive said to be more powerful than T. N. T. or dynamite, is now engaging the attention of army engineers in Washington. The report of Lieut. Col. L. M. Adams, who tested the new explosive at the California Institute of Technology at Pasadena, has been received, and referred to the Board of Engineer Equipment of Troops, at Fort Humphreys.

No details of the composition or samples of the explosive have been sent to Washington. Lieut. Col. Adams reported that it is a light greenish powder, dry and very finely divided. The inventor, Capt. H. R. Zimmer, of Los Angeles, former Army officer, claims that it can be produced for one-half the cost of T. N. T. It is declared more stable than T. N. T. and unaffected by dampness, a serious fault of the latter.

In the tests by Lieut. Col. Adams, the power of radium atomite was compared with T. N. T. and 80 per cent. dynamite. A lead cylinder, 12⅛ inches in diameter, 14½ inches high, with a hole 1⅛ inches in diameter and 9¼ inches deep, was used with each. The entire cylinders each weighed about 700 pounds. An ounce of the explosive was placed in the bottom of the hole and covered with three ounces of sand, then the explosive was detonated electrically.

Before explosion, the holes each had capacities of 125 cubic centimeters. T. N. T. enlarged the hole 1,002 cubic centimeters, dynamite 1,255, and radium atomite 1,370.

Tests were also made of the speed of explosion, or how fast the explosive reaction travels through it. This is about 10,721 feet per second for radium atomite, 16,082 for T. N. T. and 8,300 for 60 per cent. dynamite. For general use, it was stated by army engineers, this range makes no practical difference.

Officials of the engineer corps were unable to state whether or not the explosive will be adopted. After the board that is now considering the report is through, they may either request Captain Zimmer to furnish them with samples for additional tests or else invite him to Washington for the purpose.

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Scientific Arson

Engineering

When the recent fire held in Washington by the Bureau of Standards to test the fire resistant properties of safes was at its height, a stranger arrived at the Union Station. That was about the time that the photograph on our cover this week (taken by James Stokley) was made. The stranger saw the smoke and thought the entire city was on fire. His surprise increased when he arrived at the scene and found most of the firemen gazing idly at the conflagration, a few were squirting water on the ground, nearby buildings—every place but the fire.

Not for many days after the blaze had the ruins cooled off sufficiently to permit the safe to be removed by S. H. Ingberg, chief of the bureau's fire-protection division, and his associates. The safes are now at the bureau, where they are being studied. Some came through the fire nobly, as they were opened with the combination, and the papers within them were not even scorched. Others were more or less damaged, and one, on the first floor, had a door knocked off, so that its contents were completely burned. Evidently something fell on it. (See *Science News-Letter* for June 23, pp. 391-392.)

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Index to Vol. XIII will appear in next week's issue.

In This Issue—

SCIENCE NEWS-LETTER, The Weekly Summary of Current Science. Published by Science Service, Inc., the Institution for the Popularization of Science organized under the auspices of the National Academy of Sciences, the National Research Council and the American Association for the Advancement of Science.

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INTERPRETING week by week, the latest developments in the various fields of science, this magazine attempts also to present its articles in the most pleasing and readable topography and the most convenient arrangement.

The *clippability*, *indexing*, and *automatic dating* of each article are unique features.

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All of the resources of Science Service, with its staff of scientific writers and correspondents in centers of research throughout the world, are utilized in the editing of this magazine.

Does Your Baby Walk Like a Bear?

Anthropology

A hot summer evening in the Union Station at Washington, D. C. Sweaty, weary men and women were pushing and jostling before ticket windows and train gates.

A young, poorly dressed country woman, loaded down with bundles in one arm and a squalling infant in the other, sank wearily on one of the benches and tried to hush the baby. It was tired, too—and cross. Finally, in despair, she placed it on the floor at her feet.

Then something happened which may have opened a new chapter in the developing science of anthropology. The little boy didn't crawl on hands and knees like an ordinary infant. It proceeded to walk, rapidly and not ungracefully, on hands and feet just like a little bear or a little tiger—that is, it walked with the palms of the hands and the soles of the feet touching the ground.

Since the world began thousands of human infants doubtless have done the same and the behavior has passed unnoticed, or aroused comment as a childish idiosyncracy. But near this mother was seated a gentleman with an eye for just such things and unsurpassed background of knowledge with which to interpret them. His eyes followed the child with ill-concealed curiosity which the mother obviously resented. She realized that there was something "queer" about her child and she was touchy about it. Tired as she was, she swept it into her arms and hurried away.

Dr. Ales Hrdlicka, curator of physical anthropology at the National Museum in Washington, had hoped to question her—to find out something of the little one's heredity and previous behavior. But it was obvious he would get a cool reception

if he approached her and that there was no possibility of extracting any information. Probably gossipy neighbors in some small Maryland or Virginia community already had made the most of this child's peculiarity to the poor mother's intense discomfort. Perhaps they had nick-named it "little cat" or something of the kind.

But Dr. Hrdlicka stored away the incident in his memory. This was the second case of "quadruped progression" among human infants that he had witnessed. The first was years before, among the Indians of Northern Mexico. The thought came to him now that this odd behavior of infants about one year old might be the opening for a new branch of study. He sensed the likelihood that here was an atavism—a peculiar physical throw-back to some far distant quadruped ancestry. He believed that it was rare.

Since a wide appeal has been made for information, as a result of which nearly 100 instances have now been brought to Dr. Hrdlicka's attention. Nearly all of them have come from the better-educated type of American families. The response to Dr. Hrdlicka's request for cases of quadruped progression seems to bear this out. Children in their first year, he has found, not only sometimes walk like quadrupeds, but combine with this other peculiarities of animal-like physical behavior which ordinarily are dormant in the instinctive background of the human race, but are likely to crop out every now and then in anybody's child.

Perhaps the oddest bit of behavior concerning which mothers have written him is that of a seven-year-old girl who has the ability to walk up a tree-trunk like a cat—that is she does not "shinny" up the tree with her arms and legs partially around the trunk, so that she had a three-sided grip, but literally "walks" up rapidly and naturally as many quadrupeds would do.

Another mother wrote of a little girl who, before she began to walk, had the habit of squatting down on her knees and holding her hands before her as a dog holds his paws. Shortly afterwards she began to walk on all fours.

Another interesting case reported was that of a little boy who walked rapidly on all fours and, during his progress, reached down and picked up an apple with his teeth without pausing, just as a young quadruped might do.

Dr. Hrdlicka now is anxious to hear from persons of all races in the United States. Thus far the cases reported to him all have been from white families and, for the most part, from old American stock. He needs instances of the same thing from other races—from negroes, Indians and Asiatics. He has addressed hundreds of letters to missionaries in Africa, Asia and elsewhere among primitive people, asking them to acquaint him with any such instances of animal-like behavior among the children of the people with whom they are working.

"I suppose," said Dr. Hrdlicka, "that many persons who have seen such behavior hesitate to write me about it because they feel that it might be a reflection on their children. This is borne out by the fact that the bulk of my correspondence has been from well-educated parents who appreciate the scientific value of this study.

"It is, of course, no reflection whatsoever upon the child. This behavior is purely physical and physiological, and not (*Turn the page*)

Babies That Walk Like Bears—*Continued*

AN OCCASIONAL CHILD is found who keeps the "quadruped" ability for several years, and can use it to good advantage in climbing trees

mental, and the child does not continue it long after learning to walk naturally on its two feet. Parents have no reason to be ashamed of these manifestations, for generally the children showing them are rather above than below the average both mentally and physically, and every instance correctly reported is of great value to science. The whole subject of physical behavior atavisms is an almost untouched field which seems to have been tapped by these accidental observations, and no one can tell what may eventually come of it."

Following are a few extracts from the dozens of letters he has received, almost all of them from college or university graduates:

A graduate of the University of Chicago, now in the government service in Washington, furnished Dr. Hrdlicka with this exact description of the method of quadruped progression, as illustrated by the behavior of his own child: "His hands are placed flat on the floor with the fingers extending forward (the hands turned slightly inward at an angle to the axis of the body) nearly parallel to each other. The thumb is held at an angle of 45 to 60 degrees to the fingers. The weight of the body is placed very largely upon the palm of the hand, the fingers supporting practically no weight.

"The way he places his feet on the floor varies somewhat with the rate of movement. If he is moving leisurely he will bring one foot forward and place it practically flat upon the floor. As his body moves forward the heel is raised from the floor and when he is ready again to carry the foot forward only the toes and ball of the foot will rest upon the floor. If his movements are rapid his heel frequently will not touch the floor when the foot is brought forward.

"His right hand and left foot go forward at practically the same time. I think this is of particular interest as it is the usual method of locomotion of most animals from the reptiles up. I believe the gill fins and posterior fins of fishes also move in this fashion. I have noticed that most men in walking swing the right hand forward at the same time as the left foot is carried forward."

"This was her regular method of locomotion," writes the mother of a junior in George Washington University, "until she was ten months of age, when she began to walk like a human being. She was exceedingly rapid in her movements."

"Our son, who is almost 20 months old, has just abandoned this means of locomotion," writes a Michigan father. "He did not learn to take steps until he was about 15 months old. After he learned to walk he reverted to the 'all-fours' method when he happened to be in a hurry. Now he occasionally goes around on all fours, though he can walk and run perfectly well."

"As a rule," Dr. Hrdlicka says once more, "the children that develop these phenomena are born strong and healthy, have ample vitality, and frequently remain above the average in strength, activity and even mentality. It is remarkable that there is not one really sickly or defective child in the whole series, and there is not one record of a child who has died. It seems safe to conclude that it is the robust and healthy child and not the weakling or otherwise defective baby that is liable to develop the peculiarity of walking or running on all fours instead of creeping."

The Extravagance of Our Forefathers

Chemistry

By Edwin E. Slosson

There are many things our ancestors did that we cannot approve of, but perhaps nothing shocks us more, when we think of it, than their wasteful habits. The modern man supports his family on what his grandfather threw away. It appears that once they butchered animals for their meat. To our economical minds this is as shocking as to read of hunters on the Western plains who slaughtered buffalo by the thousands to get their hides. Nowadays the packers could afford to give away the meat because they make more money out of what used to be mostly refuse. Still, they are not satisfied. They keep experts at work all the time shortening the process so fewer people need spend their time at this necessarily disagreeable work. Their chemists run after the doctors, crying, "Here's a useless organ. Can't you use it in your business?" And the doctors hunt around until they find a use for it, in stopping blood, curing cretins, digesting banquets or something else.

The dump-heaps of our ancestors are our mines. We go over them and pick out the precious metals they left, the gold, uranium and radium. Whenever they made anything they were just as likely as not to throw away the most valuable part. When they made soda they let the chlorine escape into the air, contaminating that, instead of utilizing it to make bleaching powder for purification. When they made charcoal, they let the alcohol and the vinegar and a hundred valuable medicines and perfumes go up in smoke. It was like burning up a whole drug store. When they made iron they let the slag go to waste instead of making cement for walks and bridges and houses out of it. When they picked the seeds out of cotton they threw them away, never thinking how much salad oil could be got out of them.

The farmer's wife who put her wood ashes into a wooden hopper in the back yard thought she was economical, but when she made her soap she threw away the glycerine, never dreaming that she might blast out subways with it or blow up a Czar. Into the fireplace were thrown great logs, enough to print a Sunday edition of a yellow journal. Perhaps a hundredth part of 1 per cent. of the heat it produced reached the joint turning on the spit or the shivering limbs of the household. The ancient Chinese way of roasting pig was miserly in comparison.

When they used coal they burned it right up under the boiler in making steam. If they had had any ideas of economy they would have made gas of it and exploded that in the cylinder, conveying power from a central plant with little leakage by electric wires. When they made gas for lighting they did not even take the trouble to save the ammonia and the sulfur. To celebrate a political election the boys were allowed to burn barrels of tar, sending up in nasty smoke finer perfumes than attar of roses, flavors of more fruits than the botanist knows, dyes of more colors than there are in the rainbow, and medicines that cure all the diseases that the flesh has since become heir to.

Nowadays, when we practice our stricter economies, partly on account of their prodigality, our filial respect for them is impaired by the thought of their lack of consideration for us, their heirs. We would not mind their waste of time and labor, foolish as it seems, if they had not also squandered the world's capital, its natural resources.

Those were the days when pins were saved, when carpenters stooped to pick up dropped nails, and scraps of paper were pasted together to make notebooks. If they had had forethought they would not have shaped pins and nails expensively by hand and made paper out of such valuable material as rags.

Penny wise and pound foolish our grandfathers were. Of course, we must remember that they did not know any better, but to read of their carelessness is like watching a child burn up the paper money that he has found in his father's desk.

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Insects Make Late Appearance

Entomology

Caterpillars, moths, grubs and other insects due to put in an appearance about this time of the year are behind schedule, according to the U. S. Bureau of Entomology. All the crawling, flying pests that distract vacationists and drive farmers and fruitgrowers frantic should have appeared from two to three weeks earlier and their absence, or presence in small numbers only, indicates that the season is still late.

However, the Nova Scotia season is three weeks ahead of last year's schedule and fruit growers there are already being advised to begin late treatment for red mites and bud moths.

In the United States white grubs and cutworms appear to be less prevalent than last year, but the wireworm is doing unusual damage in the New England, East Central and West Central states.

Cabbages, asparagus and cucumber plants are suffering severe attacks from the insects peculiar to them. The European red mite survived the winter well and will be present in large numbers again this year, probably exceeding the infestation of last season.

Science News-Letter, June 30, 1928

High Pressure Steam

Engineering

High-pressure methods of modern business are now used in the boiler houses and power plants as well as in sales offices. More than twenty designs of boilers successfully operating and generating power at pressures of 500 pounds per square inch or over were described to the American Society of Mechanical Engineers at Pittsburgh, recently, by George A. Orrok, New York engineer.

Although the usual boiler installation generates steam at about 200 pounds pressure, there are six successful designs that operate at over 1000 pounds and one at 2000 and over. Forty power plants in the country use the newly evolved high-pressure boilers of more than 500 pounds pressure.

Saving in fuel, space and economies in operation are reported as a result of the use of the higher pressures.

Science News-Letter, June 30, 1928

Flower-Child

Archæology

FRANK L. HAYES in "Field Museum Musings" in the *Chicago Daily News:*

Before the coming of the conquistadors, the Spanish adventurers who conquered Mexico, the native Aztecs and Toltecs worshipped gods whom they represented by stone images. The god of rain was shown with tusked mouth, ringed eyes and long fingers, the god of wind with lips like a bellows, and Flower-Child, the god of music and flowers, had a crested head and uplifted face.

Said Flower-Child: "I want to wear
The crest of some wild bird;
I want to hear upon the air
Tunes mortals never heard.
I'll wear the bright volcanic glass
A gem within my breast."
Walk softly, mortal folk who pass,
And do not break his rest.
Why do we see upon his face
That yearning look of pain?
Such anguished lines we cannot trace
On brows of Wind and Rain.
Perhaps he wrings his hands in dread
At hearing on these shores
The menacing, discordant tread
Of bold conquistadors.

Science News-Letter, June 30, 1928

Airplanes are useful to seal hunters in locating ice floes where seals are gathered.

Since fish are believed to be color blind, the fisherman's gaily colored flies are probably more intriguing to the man than to the fish.

CLASSICS OF SCIENCE: William Banting on Corpulence

Diet

"This letter is respectfully dedicated to the public simply and entirely from an earnest desire to confer a benefit on my fellow creatures."—WILLIAM BANTING.

LETTER ON CORPULENCE, addressed to the Public. By WILLIAM BANTING. London, 1863.

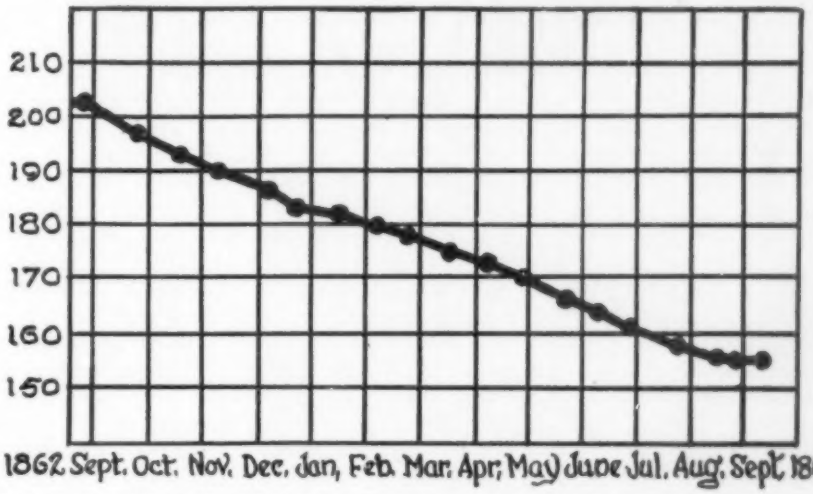
Corpulence

Of all the parasites that affect humanity I do not know of, nor can I imagine, any more distressing than that of Obesity, and having just emerged from a very long probation in this affliction, I am desirous of circulating my humble knowledge and experience for the benefit of my fellow man, with an earnest hope it may lead to the same comfort and happiness I now feel under the extraordinary change—which might almost be termed miraculous had it not been accomplished by the most simple common-sense means. * * *

I am now nearly 66 years of age, about 5 feet 5 inches in stature, and, in August last (1862), weighed 202 pounds, which I think it right to name, because the article in the *Cornhill Magazine* presumes that a certain stature and age should bear, ordinarily, a certain weight, and I am quite of that opinion. I now weigh 167 pounds, showing a diminution of something like 1 pound per week since August, and having now very nearly attained the happy medium. I have perfect confidence that a few more weeks will fully accomplish the object for which I have labored for the last thirty years, in vain, until it pleased Almighty Providence to direct me into the right and proper channel—the "tram-way," so to speak—of happy, comfortable existence.

Few men have led a more active life—bodily or mentally—from a constitutional anxiety for regularity, precision, and order, during fifty years' business career, from which I have now retired, so that my corpulence and subsequent obesity was not through neglect of necessary bodily activity, nor from excessive eating, drinking, or self-indulgence of any kind, except that I partook of the simple aliments of bread, milk, butter, beer, sugar, and potatoes more freely than my aged nature required, and hence, as I believe, the generation of the parasite, detrimental to comfort if not really to health. * * *

None of my family on the side of either parent had any tendency to corpulence, and from my earliest



HOW BANTING LOST WEIGHT drawn from data given in the second edition of the Letter on Corpulence, November 1863

years I had an inexpressible dread of such a calamity, so, when I was between thirty and forty years of age, finding a tendency to it creeping upon me, I consulted an eminent surgeon, now long deceased—a kind personal friend—who recommended increased bodily exertion before my ordinary daily labors began, and thought rowing an excellent plan. I had the command of a good, heavy, safe boat, lived near the river, and adopted it for a couple of hours in the early morning. It is true I gained muscular vigor, but with it a prodigious appetite, which I was compelled to indulge, and consequently increased in weight, until my kind old friend advised me to forsake the exercise. * * *

When a corpulent man eats, drinks, and sleeps well, has no pain to complain of, and no particular organic disease, the judgment of able men seems paralyzed—for I have been generally informed that corpulence is one of the natural results of increasing years; indeed, one of the ablest authorities as a physician in the land told me he had gained 1 pound in weight every year since he attained manhood, and was not surprised at my condition, but advised more bodily exercise—vapor-baths and shampooing, in addition to the medicine given. Yet the evil still increased, and, like the parasite of barnacles on a ship, if it did not destroy the structure, it obstructed its fair, comfortable progress in the path of life. * * *

Although no very great size or weight, still I could not stoop to tie my shoe, so to speak, nor attend to the little offices humanity requires without considerable pain and difficulty, which only the corpulent can understand; I have been compelled to go down stairs slowly backwards, to save the jar of increased weight upon the ankle and knee joints, and been obliged to puff and blow with every slight exertion, particularly that of going up stairs. I have spared no pains to remedy this by low living (*moderation and light food* was generally prescribed, but I had no direct bill of fare to know what was really intended), and that, consequently, brought the system into a low impoverished state, without decreasing corpulence, caused many obnoxious boils to appear, and two rather formidable carbuncles, for which I was ably operated upon *and fed into increased obesity.* * * *

At last, finding my sight failing and my hearing greatly impaired, I consulted, in August last, an eminent aural surgeon, who made light of the case, looked into my ears, sponged them internally, and blistered the outside, without the slightest benefit, neither inquiring into any of my bodily ailments, which he probably thought unnecessary, nor affording me even time to name them.

I was not at all satisfied, but, on the contrary, was in a worse plight than when I went to him; however, he soon after left town for his annual holiday, which proved the greatest possible bless- *(Turn to next page)*

Banting on Corpulence—*Continued*

ing to me, because it compelled me to seek other assistance, and, happily, I found the right man, who unhesitatingly said he believed my ailments were caused principally by corpulence, and prescribed a certain diet—no medicine, beyond a morning cordial as a corrective—with immense effect and advantage both to my hearing and the decrease of my corpulency.

For the sake of argument and illustration I will presume that certain articles of ordinary diet, however beneficial in youth, are prejudicial in advanced life, like beans to a horse, whose common, ordinary food is hay and corn. It may be useful food occasionally, under peculiar circumstances, but detrimental as a constancy. I will, therefore, adopt the analogy, and call such food human beans. The items from which I was advised to abstain as much as possible were: Bread, butter, milk, sugar, beer, and potatoes, which had been the main (and, I thought, innocent) elements of my existence, or, at all events, they had for many years been adopted freely.

These, said my excellent adviser, contain starch and saccharine matter, tending to create fat, and should be avoided altogether. At the first blush it seemed to me that I had little left to live upon, but my kind friend soon showed me there was ample, and I was only too happy to give the plan a fair trial, and, within a very few days, found immense benefit from it. It may better elucidate the dietary plan if I describe generally what I have sanction to take, and that man must be an extraordinary person who would desire a better table:

For breakfast, I take four or five ounces of beef, mutton, kidneys, broiled fish, bacon, or cold meat of any kind except pork; a large cup of tea (without milk or sugar), a little biscuit, or one ounce of dry toast.

For dinner, five or six ounces of any fish except salmon, any meat except pork, any vegetable except potato, one ounce of dry toast, fruit out of a pudding, any kind of poultry or game, and two or three glasses of good claret, sherry, or Madeira—champagne, port and beer forbidden.

For tea, two or three ounces of fruit, a rusk or two, and a cup of tea without milk or sugar.

For supper, three or four ounces of meat or fish, similar to dinner, with a glass or two of claret.

For nightcap, if required, a tumbler of grog—(gin, whiskey, or brandy, without sugar)—or a glass or two of claret or sherry.

This plan leads to an excellent night's rest, with from six to eight hours' sound sleep. The dry toast or rusk may have a tablespoonful of spirit to soften it, which will prove acceptable. Perhaps I did not wholly escape starchy or saccharine matter, but scrupulously avoided those beans, such as milk, sugar, beer, butter, etc., which were known to contain them.

On rising in the morning I take a tablespoonful of a special corrective cordial, which may be called the Balm of Life, in a wine-glass of water, a most grateful draught, as it seems to carry away all the dregs left in the stomach after digestion, but is not aperient; then I take 5 or 6 ounces of solid and 8 of liquid for breakfast; 8 ounces of solid and 8 of liquid for dinner; 3 ounces of solid and 8 of liquid for tea; 4 ounces of solid and 6 of liquid for supper, and the grog afterwards, if I please. I am not, however, strictly limited to any quantity at either meal, so that the nature of the food is rigidly adhered to.

Experience has taught me to believe that these human beans are the most insidious enemies man, with a tendency to corpulence in advanced life, can possess, though eminently friendly to youth. He may very prudently mount guard against such an enemy if he is not a fool to himself, and I fervently hope this truthful unvarnished tale may lead him to make a trial of my plan, which I sincerely recommend to public notice—not with any ambitious motive, but in sincere good faith to help my fellow creatures to obtain the marvelous blessings I have found within the short period of a few months.

I do not recommend every corpulent man to rush headlong into such a change of diet (*certainly not*), but to act advisedly and after full consultation with a physician.

My former dietary table was bread and milk for breakfast, or a pint of tea with plenty of milk and sugar, and buttered toast; meat, beer, much bread (of which I was always very fond), and pastry for dinner, the meal of tea similar to that of breakfast, and generally a fruit tart or bread and milk for supper. I had little comfort and far less sound sleep.

It certainly appears to me that my present dietary table is far superior to the former—more luxurious and liberal, independent of its blessed effect—but when it is proved to be more healthful, comparisons are simply ridiculous, and I can hardly imagine any man, even in sound health, would choose the former, even if it were not an enemy; but, when it is shown to be, as in my case, inimical both to health and comfort, I can hardly conceive there is any man who would not willingly avoid it. I can conscientiously assert I never lived so well as under the new plan of dietary, which I should have formerly thought a dangerous, extravagant trespass upon health. I am very much better, bodily and mentally, and pleased to believe that I hold the reins of health and comfort in my own hands; and, though at sixty-five years of age, I cannot expect to remain free from some coming natural infirmity that all flesh is heir to, I cannot, at the present time, complain of one. It is simply miraculous, and I am thankful to Almighty Providence for directing me, through an extraordinary chance, to the care of a man who could work such a change in so short a time. * * *

My kind and valued medical adviser is not a doctor for obesity, but stands on the pinnacle of fame in the treatment of another malady, which, as he well knows, is frequently induced by the disease of which I am speaking, and I sincerely trust most of my corpulent friends (and there are thousands of corpulent people whom I dare not so rank) may be led into my tramroad. To any such I am prepared to offer the further key of knowledge by naming the man. It might seem invidious to do so now, but I shall only be too happy, if applied to by letter in good faith, or if any doubt should exist as to the correctness of this statement.

WILLIAM BANTING, Sen.,

Late of No. 27, St. James Street, Piccadilly, Now of No. 4, The Terrace, Kensington.

May, 1863.

William Banting was born in 1797 and died in 1878. He was an English merchant whose chief claim to fame lies in his having been too fat. This week's classic tells how he reduced his weight to normal by cutting down the carbohydrate content of his diet. He was the first to use that procedure and from his name the English have coined the verb "to bant." "Banting" in English is the same as "dieting" in American speech.

Earthquake Reveals Mexican Jewels

Archæology

By Emma Reh Stevenson

It is an ill wind that blows no good, and Mexico has found a new use for earthquakes.

One of the recent "temblores" that shook the southern state of Oaxaca until it rattled, broke open an ancient tomb of some king or high priest of the high mysterious mountain city of Monte Alban and poured out fifteen beautifully carved jade objects, precious funeral contributions of long ago. Another severe quake was felt in the same region on June 16.

The mystery of Monte Alban has never been solved by archæologists and there are none to say who were its builders. It is tacitly assumed that they were Zapotecs or Mixtecs, who are believed to have been culturally a cross between the Toltecs of the Valley of Mexico to the north and the Mayas to the south. No systematic research has ever been conducted at the site to determine the truth of any of the assertions.

The jade articles which were disgorged by the earthquake, however, speak a loud Maya tongue. The carved faces are suspiciously like those on ancient monuments at Yaxchilan, Palenque and other Maya cities of the early Maya Empire which flourished in Southern Mexico and Guatemala during the first 500 years or more of the Christian Era.

All the articles are pierced for suspension, showing that they probably formed the precious necklace of some high noble, for the wearing of jade was a privilege reserved only for the upper class among prehistoric Americans. The find contains several small idols with folded arms like little mummies, two carved heads, a number of large beads the size of a walnut carefully polished and grooved, four tube-like "beads" several inches long, so highly polished and expertly finished that they look machine-made, and most beautiful of all is a flat jade plaque about three inches long carved to represent a seated figure with a flowing headdress of plumes and wearing little else in addition except a long breechcloth.

The possibility that Monte Alban was not a Zapotec or Mixtec city but perhaps a forerunner of the Maya cities that flourished farther south, is strongly suggested by the nature of the art of the jade articles. If the Mayas came from the north and were descended, as some scientists believe, from the same stock that under other conditions produced the Toltecs, then Monte Alban might have been a point in the long trail of a slow migration. There is no other ancient city in Mexico just like Monte Alban, built for some unknown reason high above the green valley below, accessible only along steep mountain paths.

It crowns a mountain ridge a thousand feet high overlooking the modern pink-and-green city of Oaxaca, and was deserted when the Conquistadores came. It is today an enormous and complicated system of pyramids, terraces, sunken courts, crumbling walls like fortifications, and stumps of foundations of old buildings. None of these ruins remain intact or in anywhere as good condition as those of another prehistoric city called Mitla, on the other side of Oaxaca, which was still occupied by the Indians when the Spaniards came.

The angles of pyramids and sharp edges of walls of Monte Alban are today rounded by nature with earth and vegetation, and all is wrapped in a shroud that only allows the general effect to be seen, like objects under a sheet. The precious gift of jade that the recent earthquake poured out into the green lap of Monte Alban gives an idea of what may be hidden within the mounds with their vaulted burial chambers.

The objects were sent by Martin Bazan, inspector of archæology for the State of Oaxaca, to the Direction of Archæology of the Mexican Department of Education, in Mexico City.

Science News-Letter, June 30, 1928

Rays Harm Plants

Botany

Extra doses of ultra-violet light are not so good for plants as for animals, it appears from experiments carried on here by E. M. Delf, K. Ritson and A. Westbrook, working at Kew Gardens and Bedford College.

The experiments were undertaken with the idea of finding the possible effect of the light on plants brought from the south to northern countries, where there is much less sunshine. Seedlings and older plants were given treatments with quartz mercury vapor lamp, similar to those given human beings. Germination and growth were retarded and in older plants, leaf-formation was partially inhibited and flower-formation and budding were held back.

Science News-Letter, June 30, 1928

Sunflowers For Silage

Agriculture

Where corn is not a dependable silage crop, it has been found desirable to use sunflowers in its place, and so successful has experimentation along these lines been that it is now advocated that sunflowers be grown in crop rotation schemes.

A mixed silage of corn and sunflowers makes a more palatable and nutritious silage than sunflowers alone, and this has caused the planting of the two together. With the effective feature that sunflowers are very good in controlling weeds, the plant is slowly becoming an agricultural necessity.

Science News-Letter, June 30, 1928

During the tulip craze in seventeenth century Europe, one man exchanged 12 acres of land for a single tulip bulb.

Spitsbergen With "S"

Geography

Spitsbergen, not Spitzbergen, is the correct way of spelling the name of the popular hopping-off place for polar aviators. So announced the United States Geographic Board here in response to a query as to the official spelling.

Spitzbergen, with the "z", was the original spelling, as given by the discoverer of the archipelago in June, 1596, a Dutchman named Barentz, and it means "pointed mountains." This name was applied because it consists mostly of mountains and pointed hills. However, most English and American maps and atlases spell it with an "s". Also, in the treaty of 1920, which gave sovereignty over the islands to Norway, and to which the United States was a party, the English text spelled it the same way. Hence, the U. S. Geographic Board has adopted the "s" as official.

Science News-Letter, June 30, 1928

The Menace of America

Psychology

AN ANONYMOUS WRITER, in *The Future of America* (Harper's Magazine, April, 1928):

The menace of low mentality is perhaps the greatest danger that confronts any nation or civilization, but it is a vastly greater danger in a democracy than in an autocracy. It is, moreover, an insidious danger; for as long as intelligent leaders are in command it is not visible, but it is always present and may at any time lead to disastrous consequences. The Army Mental Tests, which have been decried but never disproved, as well as the records of our public schools show an alarming degree of low mentality in this country. In the Army Mental Tests more than twice as many were found to be of inferior mentality as were in the superior grades. It is estimated that there are about two million mental defectives in the United States who need institutional care, about five millions who have been mentally unable to get through the grade schools, and about twenty-five millions unable to get through high school. The ultimate standing and success of any popular government must depend upon the intelligence of its citizens. Hitherto we have assumed that intelligence depends upon education and that general compulsory education would solve this problem. But, alas, we now find that millions of our population are incapable of education beyond the elementary grades. In spite of the fact that we are spending more public funds on education than any other nation on earth, there is good evidence that the average intelligence of our people has been declining for the past twenty-five years at least.

Science News-Letter, June 30, 1928

The effect of moving pictures upon the school records, deportment, and emotional stability of children is being investigated in California.

The English sparrow population of this country has decreased greatly in recent years.

An alabaster model of the beautiful Taj Mahal of India has been presented to the Field Museum of Natural History.

The peak of railroad construction in this country was reached in 1902, when more than 6,000 miles of new road were built.

Helium Placed on Open Market

Chemistry

The discovery of new natural gas fields which have a high helium content, together with improvements in the method of extraction, have resulted in this gas being placed on the open market for the first time in the United States.

Helium, used chiefly for floating balloons, from the penny toys to American dirigibles like the Los Angeles, has until now been under government control. Besides the field at Fort Worth, Texas, which has been supplying the government with 500,000 cubic feet of helium a month, a new one is now being opened at Amarillo, Texas. This new field will provide practically an unlimited supply, certainly enough for the needs of the War and Navy Departments, according to officials of the Bureau of Mines.

Helium was originally discovered by two astronomers, Janssen and Lockyer, who found it while making spectroscopic observations of the sun in 1868. It was first discovered in a mineral, cleveite, in 1895, by Sir William Ramsay, who later observed the fact that helium is always found in natural gas near radioactive minerals.

This gas, besides floating balloons, lessens considerably the danger of caisson work by shortening the recompression time and reducing the number of cases of "bends" and also makes it possible for deep-sea divers to work safely at much greater depths. Since it is available commercially it is being used in metallurgy and for filling radio tubes and glow lamps. Other uses are developing as the supply becomes generally available.

Science News-Letter, June 30, 1928

Report Size Of Fish

Ichthyology

Fishermen who yearn for an audience to listen to the size and weight of their catch will have an ideal time in Wisconsin this summer. A complete survey of game fish in the state is being made by the Wisconsin Geological and Natural History Survey in cooperation with the U. S. Bureau of Fisheries, and all sportsmen in the region have been called upon to help with the evidence.

For just this once the fishermen will be asked positively not to exaggerate the correct weight and length of the fish they capture. But the committee hastens to assure them that the records will not be made public, so no fish stories will be spoiled for social purposes.

The aim of the project is to make each lake produce its maximum amount of game fish best suited to that particular lake. The survey will require a collection of 50,000 samples of fish scales to be used in checking up on the ages of the Wisconsin fish population. The ages of fish can be determined by counting the rings on the scales.

Science News-Letter, June 30, 1928

Experimenters at Cornell University are trying to find out whether doses of sunshine are good medicine to prevent colds.

Twenty cans of trout which traveled by airplane from Michigan to Ohio last month hold the record for being the first fish to be transported by air.

Antlered Female Deer

Zoology

Three authentic specimens of female deer equipped with antlers, which are usually the exclusive property of the bucks, are reported to the Journal of Mammalogy by Joseph Dixon of the University of California. They were all secured in the same general region, in the neighborhood of Truckee, Calif. The horns were sufficiently developed that all three animals were shot under the impression that they were bucks. The antlers of one of the specimens were imperfectly grown and still "in the velvet" in autumn, but the other two had shed their velvet and were normal antlers to all appearance. All three of the animals belonged to the species known as the Rocky Mountain blacktail or mule deer, and were larger than ordinary does.

Science News-Letter, June 30, 1928

European Roads Inferior

Engineering

European roads, which fifteen years ago were superior to the American automobile trails of those days, are now far inferior to the hard-surfaces available for touring here in America, Tore Franzen of Detroit told the Society of Automotive Engineers.

The main roads of the Old World, once the trade routes of the civilized world, have deteriorated as a result of war and lack of proper maintenance. The old stone roads that in many cases date back to the Romans, are durable, but very rough, narrow, highly crowned and surfaced with cobblestones and slabs. Other roads are of dirt, rutted and rough, with only the most necessary repairs made by the peasants who live alongside them.

There are two kinds of European motorists, Mr. Franzen discovered in surveying the situation. The dashing sportsman drives his own car and insists upon speeding over poor roads. Most European car owners, however, employ chauffeurs and desire to travel in safety and comfort.

American automobiles are sometimes criticized because they shimmy and shake on European roads. Rough roads and the low tire pressures used cause the springs to deflect deeply and give the riders severe jolts. Thin oil plentifully applied is considered in Europe to be a universal cure for any slight spring or shock-absorbed squeaks. But the oil simply puts most shock-absorbers out of commission and makes the springs weak. Mr. Franzen recommended to the automotive engineers that special springs and shock-absorbers be designed for the cars exported to the bad roads area of Europe which includes most countries except England and Switzerland.

Science News-Letter, June 30, 1928

Romans Welded Iron

Engineering

Roman artisans in England only two to three centuries after the time of Christ knew how to weld iron and how to join or "solder" two pieces of iron together with copper, the Institute of Metals was told at its meeting by Profs. J. Newton Friend and W. E. Thorneycroft of the Technical College, Birmingham. The specimen examined by them was a deep iron ferrule, like a modern napkin ring, that was unearthed during excavations of the Roman city of Uriconium located on the river Severn and destroyed about A. D. 380.

Lead pipe manufactured and laid in Rome's water system 1,800 years ago was pronounced to be in perfect condition by William A. Cowan, chemist of the National Lead Company, Brooklyn, N. Y., in a communication to the Institute. Analysis showed that the same lead was used by the Romans in England and Italy.

Science News-Letter, June 30, 1928

China, home of the silkworm, is entering the artificial silk industry.

Almost 200 rare tortoises brought back from the Galapagos Islands are to be used for breeding in the hope that they may be introduced into this country as an economic asset.

In producing helium the helium bearing gas is cooled to about 300 degrees below zero, at which state all of the constituents of the gas except the helium are reduced to liquid, and the helium gas is then drawn off and compressed into tank cars or steel cylinders for shipment.

Four Wheel Brakes Need New Law

Engineering

The universal introduction of four-wheel brakes on automobiles in the past year makes it necessary to change the brake laws that were written to safeguard cars that were equipped with brakes on rear wheels only. Prof. E. H. Lockwood and H. W. Best of Sheffield Scientific School, Yale University, told the Society of Automotive Engineers.

Existing laws provide that every automobile be equipped with two sets of brakes completely independent of each other, one for use while running and the other for parking or emergency use. Some engineers contend that in the interest of economy and simplicity and in view of the reliability of existing four-wheel brakes this provision should be repealed. A new proposed brake law, approved by the motor vehicle administrators of eastern states, requires two braking systems, with two separate means of application, each operating on at least two wheels, so arranged that a mechanical failure in either system will not affect the other. The speakers declared this new law may be interpreted to be just as objectionable as existing laws.

Science News-Letter, June 30, 1928

War Reveals Pottery

Archæology

British and French soldiers in the World War, fighting over ground where ancient men once had settlements, stumbled on many clues to man's early history, and archæologists are now busy following up the clues.

French soldiers in the near east in Macedonia alone found 74 sites where early men had lived, according to Dr. R. V. D. Magoffin, president of the Archæological Institute of America. The time when these sites were inhabited has been dated by the pottery found in different layers of earth. British soldiers found the earliest pottery, dating back to about 3000 B. C.

Imported ware which had come from the southern island of Crete was found between layers of earth containing pottery made by the early Macedonians themselves. Scholars have concluded, however, that the famous civilization of Crete did not extend its influence very strongly to this country north of Greece. So much evidence was found, the scholars studying it have practically concluded that prehistoric Macedonia learned more about civilization from the north than from the south, Dr. Magoffin says.

Archæologists are now trying to settle with more exactness the dates of the invasions or migrations from the north, which swept over Macedonia and overwhelmed the Aegean or Mycenean peoples in the lower part of the Balkan peninsula, he states.

Science News-Letter, June 30, 1928

Japanese In Roman

Philology

The use of Roman characters in Japanese writing has been criticized and defended for a sufficient number of years to be now recognized as a standard method of writing, according to A. Tanakadate, member of the Imperial Academy of Japan, and member of the International Committee on Intellectual Cooperation. Important official documents, over one hundred thousand school books, and all the text books in technical schools and colleges are now using this type of letter.

Typewriters with keyboards arranged for writing Japanese with these characters are on sale and about two hundred are now in use. The National School of Oriental Languages in Paris is now teaching Japanese with this system.

Prof. Daniel Jones, eminent English linguist and phonetician, gives a full approbation to the Romanized Japanese system. The true function of Roman characters is to represent what Professor Jones calls diaphonemes, i. e., certain groups of sounds peculiar to any particular language, and not the absolute individual sounds for which the international phonetic signs serve with sufficient approximation.

Science News-Letter, June 30, 1928

At one time Yellowstone Lake flowed into the Pacific Ocean; now it drains into the Atlantic.

Nature Ramblings

By Frank Thone

Natural History

Pike

"The mighty Luce or Pike is taken to be the tyrant, as the Salmon is the king, of the fresh water. . . . All Pikes that live long prove chargeable to their keepers, because their life is maintained by the death of so many other fish, even those of their own kind."

Thus Izaak Walton, indefatigable observer of the ways of fish and compiler of ancient lore about them. The pike is indeed a kind of small fresh-water shark in his restless roving and relentless ferocity toward others of his own kind. He is surpassed as bully of the lakes only by his big cousin, the muskallonge, and that only becase the musky is bigger.

His whole build marks him for a corsair. His body is built long but solidly, like a battle cruiser, for power as well as speed. His gaping mouth, his long, undershot jaw, his array of terrible teeth, are all parts of a racing, slashing, insatiable fish-trap.

The pike's disposition matches his build. He is the most truculent fish that swims fresh water. He will attack anything that lives, anything that moves. He is sought with live bait by many anglers, but that is not necessary, for he will pounce on a spoon or spinner or a bacon-rind bait as furiously as he will on a minnow or frog. And an array of murderous gang-hooks, that would rip the mouth of any other fish, hardly even embarrasses him. He will grab a mouthful of steel and fight it like a bulldog, and even when you have worn him out and got him alongside the boat it is best to kill him very dead before bringing him aboard. For he may take one last bite at your hand that can very well ruin your fishing trip then and there. The only good pike is a dead one.

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How to Use Index Word Feature

Classification

In order to aid in catching the items that concern you and to facilitate clipping and filing, a key-word in italics is printed under the heading of each article. The key words used fit into any system of classification, whether it be a straight alphabetical file, a system of your own devising, the Library of Congress classification or the Dewey system.

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QE Geology.
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QK Botany.
QL Zoology.
QM Human anatomy.
QP Physiology.
QR Bacteriology.
R Medicine. General.
S Agriculture. General.
SB Field crops. Horticulture. Landscape gardening. Pests and plant diseases.
SD Forestry.
SF Animal culture. Veterinary medicine.
SH Fish culture and fisheries.
SK Hunting. Game protection.
T Technology. General.
TA Engineering. General.
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TD Sanitary and municipal engineering.
TE Roads and pavements.
TF Railroads.
TG Bridges and roofs.
TH Building construction.
TJ Mechanical engineering.
TK Electrical engineering and industries.
TL Motor vehicles. Cycles. Aeronautics.
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TT Trades.
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070 Newspapers
080 Special libraries. Polygraphy
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110 Metaphysics
120 Special metaphysical topics
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140 Philosophical systems
150 Mental faculties. Psychology
160 Logic
170 Ethics
180 Ancient philosophers
190 Modern philosophers
200 RELIGION—
210 Natural theology
220 Bible
230 Doctrinal. Dogmatics. Theology
240 Devotional. Practical
250 Homiletic. Pastoral. Parochial
260 Church. Institutions. Work
270 Religious history
280 Christian churches and sects
290 Ethnic. Non-Christian
300 SOCIOLOGY—
310 Statistics
320 Political science
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390 Customs. Costumes. Folklore.
400 PHILOLOGY—
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510 Mathematics
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620 Engineering
630 Agriculture
640 Domestic economy
650 Communication. Commerce
660 Chemical technology
670 Manufactures
680 Mechanic trades
690 Building
700 FINE ARTS—
710 Landscape gardening
720 Architecture
730 Sculpture
740 Drawing. Decoration. Design
750 Painting
760 Engraving
770 Photography
780 Music
790 Amusement
800 LITERATURE—
810 American
820 English
830 German
840 French
850 Italian
860 Spanish
870 Latin
880 Greek
890 Minor languages
900 HISTORY—
910 Geography and travels
920 Biography
930 Ancient history
Modern
940 Europe
950 Asia
960 Africa
970 North America
980 South America
990 Oceanic and polar regions

FIRST GLANCES AT NEW BOOKS

YOUR NERVES AND THEIR CONTROL —Foster Kennedy and Lewis Stevenson—*Appleton* ($1.50). This book seeks to allay the impressions, spread by careless followers of Freud, that sex complexes, repressions and such factors are the causes of all nervous ailments. For those who like to use scientific terms and delight in diagrams, there is an accurate explanation of the structure of a single nerve, the brain and the nervous system, with easily understood illustrations. This serves as a basis for the exposition of the organic cause of nervous diseases which is the main feature of the book.

Neurology

Science News-Letter, June 30, 1928

CANCER—Albert Soiland—*Appleton* ($1.50). Most important for successful treatment of cancer is the early recognition and report of the disease. Failure in this essential factor is largely due to fear and ignorance on the part of the public. This book gives in simple language the important facts of the cause, symptoms and treatment of the disease with a valuable chapter warning against quackery and fake cures.

Dr. Soiland's sane, frank discussion should do much to allay the fear of cancer, which, he says, "is inestimably worse than cancer itself."

Medicine

Science News-Letter, June 30, 1928

SYPHILIS — Henry H. Hazen—Mosby ($10). Dr. Hazen, who is a recognized authority on the subject, has written a textbook sufficiently compact and lucid to be valuable to health and social workers and laboratory technicians as well as physicians and medical students. The economic and social aspects of the disease are discussed in the introductory chapter. Each chapter has a copious bibliography, brought up to date for this, the second edition. The chapters on Occurrence and Economic importance, Syphilis of the Nervous system, Diagnosis, Prophylaxis and Treatment have been entirely rewritten. The book is profusely illustrated.

Medicine

Science News-Letter, June 30, 1928

HOUDINI — Harold Kellock — *Harcourt, Brace* ($3.75). A fascinating account of the life of one of the greatest of modern magicians.

Psychology

Science News-Letter, June 30, 1928

A TALE OF SOAP AND WATER—Grace T. Hallock—*Cleanliness Institute* (45 East 17th Street, New York). This booklet giving "the historical progress of cleanliness" is intended for supplementary reading in the seventh, eighth and ninth grades, and will be provided free to a limited number of schools. It is admirably adapted to give children the historical perspective of a practice which they are accustomed to take for granted, however little they are inclined to employ it.

Hygiene

Science News-Letter, June 30, 1928

SOIL HANDBOOK—F. L. LaMotte—*LaMotte Chemical Products Co.* (With soil teskit and color chart, $1.50). How to grow grass on bald lawns or golf courses and how to make vegetables happy where heretofore they have had too much acidity in their food is told in this instruction book accompanying a simple outfit for testing the hydrogen ion concentration of soil, or, in other words, the degree of acidity or alkalinity.

Agriculture

Science News-Letter, June 30, 1928

HEALTH WORK IN SOVIET RUSSIA —Anna J. Haines—*Vanguard Press* (50 cents).

NEW SCHOOLS IN NEW RUSSIA—Lucy L. W. Wilson—*Vanguard Press* (50 cents). Interesting details of the methods in education and health work are given by competent eye witnesses. The volumes are small but comprehensive. They should appeal, not only to educators and health workers, but to all readers interested in the actual facts of existence in Russia today. Education and health are subjects of international scope and are, or should be, beyond political prejudice, is the thought that prompted the books.

Education

Science News-Letter, June 30, 1928

A TEXTBOOK OF ACTINOTHERAPY—D. D. Rosewarne—*Mosby* ($4). This book, written for practitioners and students, gives a detailed exposition of the physical, chemical and biological action of light as a basis for the description of clinical procedures. The author warns against the tendency of specialists to exaggergate the importance of their particular departments of medicine and sttaes definitely that "actinotherapy is not a cure for all ills."

Medicine

Science News-Letter, June 30, 1928

MY PEOPLE THE SIOUX—Luther Standing Bear—*Houghton*. The son of Chief Standing Bear the First describes memories of a crowded and adventurous lifetime. The purpose of the book is to make clear to the white man how the Sioux lived and how they felt about the white men, and how they adapted themselves to the changes that crept in as the white men invaded their country. There is an abundance of realistic detail in Chief Standing Bear's autobiography which makes the Indian life seem remarkably vivid.

Ethnology

Science News-Letter, June 30, 1928

THE UNCONSCIOUS — Edited by Mrs. W. F. Dummer—*Knopf*. "The Unconscious of the Behaviorist" suggests the incongruous combinations of Freud and John Watson. It is, in fact, the title of a chapter in this symposium by Dr. Watson in which he explains the unconscious as the unverbalized part of a human being's world. The entire collection of papers is rather different from the material usually gathered into a book dealing with the unconscious. John E. Anderson discusses the earliest reactions of the young child and how they may be utilized. Marion E. Kenworthy writes on "The Prenatal and Early Postnatal Phenomena of Consciousness," and there are chapters by C. M. Child, Kurt Koffka, Edward Sapir, W. I. Thomas, F. L. Wells, and William A. White. The papers were originally presented at a symposium under the auspices of the Illinois Society for Mental Hygience.

Psychology

Science News-Letter, June 30, 1928

HOW TO STUDY EFFECTIVELY — Guy M. Whipple—*Public School Pub. Co.* Real first aid to the high school or college student. The entire 96 pages of the tiny book are devoted to rules and practical suggestions, showing exactly how to proceed when studying for recitations or examinations and how best to learn while in the classroom. The fact that this is a second edition and that the first edition went into eight printings is worth noting.

Psychology

Science News-Letter, June 30, 1928

SIX MONTHS OF FLYING FOR BUSINESS—*A. W. Shaw Co.* An experiment in using an airplane for business travel described in a pamphlet.

Aviation

Science News-Letter, June 30, 1928

The Scientific Wonders of This World We Live In

Dr. E. E. SLOSSON

Chemist, author, educator, lecturer, is the Director of Science Service, and author of *Creative Chemistry* and *Chats on Science*. Both books have achieved wide popularity, as have his widespread lecture tours.

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